

CHAPTER 5

EXPLOSIONS IN ANKARA: POST-TRAUMATIC STRESS REACTIONS OF UNIVERSITY STUDENTS TO TERRORISM

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INTRODUCTION

Three consecutive terrorist attacks targeted Ankara, the capital city of Turkey, in 2015 and 2016. The first bombing took place on October 10, 2015, and is believed to have been perpetrated by ISIS (Islamic State of Iraq and Syria). Two bombs exploded consecutively in the space of three seconds, killing 109 people, and injuring hundreds of demonstrators who were holding a peaceful meeting. Only four months later, on February 17, 2016, a bus station near a military sector was bombed, killing 29 people, some of whom were military personnel and some civilians. The third attack occurred on March 13, 2016 at Kızılay Square, the center of the city where every Ankara citizen inevitably passes during the course of their city life. This explosion killed 38 people. The second and third terrorist attacks were perpetrated by the PKK, a Kurdish organization advocating armed struggle. Suicide bombers were responsible for carrying out all three terrorist attacks.

It is well documented in the literature that traumatic events result in elevated distress levels and can sometimes lead to mental disorders such as Post-traumatic Stress Disorder (PTSD) (American Psychiatric Association [APA], 2013; Brewin, Andrews, & Valentine, 2000; Galea, Nandi, & Vlahov, 2005). Breslau (2009) reports that residents of the USA frequently face traumatic events and less than 10% develop PTSD. Turkey is a country experiencing frequent traumatic events: natural disasters, traffic accidents, intense migration from countries such as Syria and Afghanistan, political violence, terrorism and so forth. Strikingly, an individual in Turkey reportedly has an 85% chance of experiencing a traumatic event in their lifetime (Karancı et al., 2008). In their literature review, including epidemiological

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research conducted in Turkey between 2010 and 2012, Binbay et al., (2014) conclude that the prevalence of PTSD alters between 9.6 percent and 63 percent depending on the design of the research. The terrorist attacks mentioned above were followed by many other incidents which cost many lives across Turkey. In 2013 it was estimated that nearly 40,000 people, including military personnel, police officers, civilians and PKK members, had been killed in armed conflagration the previous 37 years in the country (TBMM, 2013) and the numbers have increased even further since then with ongoing political turmoil. It can be said that people living in Turkey were facing ongoing traumatic events during the course of our research.

Some authors argue that PTSD is not sufficient to understand the consequences of a continuously dangerous and traumatic environment, since it focuses on an event that took place in the past. According to Eagle and Kaminer (2013), continuous traumatic stress (CTS), which was first mentioned in the literature by Straker and the Sanctuaries Counselling Team (1987), is proposed “as a supplementary construct within the lexicon of traumatic stress, to describe the experience and impact of living in contexts of realistic current and ongoing danger, such as protracted political or civil conflict or pervasive community violence”. The authors argue that, in CTS, ongoing events result in a preoccupation with safety, rather than a preoccupation with past events, which is the main characteristic of PTSD. Other attempts have been made to conceptualize the consequences of prolonged exposure to traumatic events. Ford and Courtois (2009) followed Herman (1992) to discuss Complex PTSD, which has similarities with CTS. In her classic book, Herman argues that those who are forced to live in inescapable and traumatic conditions have different and more enduring reactions compared to those who experience a single traumatic event. Accordingly, one may say that prolonged traumatic experience becomes a part of the self of the survivor. Though complex PTSD and stress reactions as a result of CTS are different constructs in the literature, they have similarities. Karatzias et al. (2017) use the ICD-11 Trauma Questionnaire to understand the validity of the newly introduced Complex PTSD and suggest that PTSD and Complex PTSD could be distinguished by this questionnaire. This finding indirectly supports the idea that CTS can be conceptualized as a distinct phenomenon. In this regard, the three consecutive explosions in Ankara and the continuing political climate can be conceptualized as CTS as well as singular traumatic events, since they are part of an ongoing unstable and terrifying set of continuous events. Continuous traumatic events may severely damage mental health (Green et al., 2000; Straker & Moosa, 1994) and those who suffer from continuous terrorist attacks are prone to develop stress reactions (Somer et al., 2005).

Terrorist attacks are undoubtedly one of the most difficult experiences a human can face and they induce reactions of severe stress across the world (Engdahl, 2004) and need special attention as they effect the routines of people and interfere with the identity of the survivors. Danieli et al. (2004) state that terrorist attacks such as 9/11 create a 'new normality', the major question of which is "How do we live with growing levels of threat, anxiety, fear, uncertainty, and loss?". The authors underline that terrorist attacks may cause problems by interfering with the survivor's identity, which is a complex system including biological, intrapsychic, interpersonal and social aspects with a time dimension. In order to integrate the traumatic experience, the survivor needs the help of society. However, the urge of society to quickly return to normal can pose problems for the survivor, as this urge creates a "conspiracy of silence" (Danieli et al., 2004). It seems that this kind of an impact which changes the daily routines involuntarily and raise issues in the identity of the person may cause psychological problems. In their longitudinal research on the effects of the 2011 Oslo bombings, Hansen et al. (2017) report that after 10, 22 and 34 months, PTSD was observed in 24%, 17% and 17% of the survivors at the site of the explosion respectively. They add that it was not only those who were close to the incident but also indirect observers who were affected as well. The rates of PTSD for indirect observers were lower, being 4%, 3% and 2% respectively. Eşsizoğlu et al. (2009) documented similar results in Turkey, indicating that 9.6% of those who experienced a terrorist attack in Diyarbakır were diagnosed with PTSD 3 months after the incident. Liverant et al. (2004) found mild levels of anxiety in college students who were indirectly affected by 9/11, although this decayed over time.

In an era of "global terrorism", it is very important to recognize the risk factors for showing stress reactions after ongoing traumatic events and attain a better understanding of the post-traumatic stress reaction. It is a common finding in the literature that women are at higher risk than men of developing PTSD after traumatic events (Norris et al., 2002; Pineles et al., 2017). Hopelessness can also be seen as a risk factor for PTSD, and it may be responsible for the high co-morbidity between PTSD and depression (Harvey et al., 1995; Angelakis & Nixon, 2015). Smith et al. (2016) underline that the type of traumatic event seems to be a significant predictor of the intensity of symptomatology and argue that interpersonal trauma results in more symptoms and over a longer duration of time when compared with non-interpersonal trauma. Kılıç (2003) reports that proximity, trauma type, physical injury, loss of a loved one and the repetitive nature of the event are all important factors which determine the severity and thus impact

of the event. Social support is known to be related to many psychological disorders, as well as PTSD (Ehlers et al., 2012). Dirkzwager et al. (2003) report that the presence of adequate social support is negatively correlated with PTSD symptomology, and vice versa. Interestingly, Jankowski et al. (2004) found a positive correlation between social support and PTSD. They explain this unexpected result by the survivors' motivation to seek out more social relations in order to get support. Dissociation is also found to be related to PTSD (Brewin & Holmes, 2003). Swick et al. (2017) discuss the relationship between dissociation and memory by considering the memory deficits observed in their PTSD group and explain their findings as a result of "executive components of WM [working memory] dissociated from WM maintenance". However, other research suggests that peritraumatic dissociation is not always a reliable independent predictor of PTSD (Marx & Sloan, 2005; van der Velden & Wittman, 2008). In their meta-analysis, Brewin et al. (2000) conclude that, along with other predictors, three risk factors are evident in many populations: the psychiatric history of the survivor, the psychiatric history of the survivor's family and early adversity in the survivor's childhood. Another meta-analysis (Ozer et al., 2003) identifies 7 risk factors for PTSD: prior trauma, prior psychological adjustment problems, history of psychopathology in the family, perceived life threat during the trauma, post-traumatic social support, peritraumatic emotional response, and peritraumatic dissociation. Importantly, the authors claim that peritraumatic psychological processes are stronger predictors than prior characteristics.

Coping is another psychological variable frequently investigated in the trauma literature. According to Lazarus and Folkman (1984) when an individual notices danger by "primary appraisal" a coping response is needed, and this leads to a "secondary appraisal" where the internal (e.g. abilities, physical condition) and external resources (e.g. equipment, colleagues) of the individual are assessed. Folkman and Lazarus (1991) define two coping styles: emotion-focused and problem-focused. Dysfunctional coping is proposed as a third coping style, describing negative reactions that disable an individual's coping skills such as distractive activities or substance use (Carver et al., 1989). In emotion-focused coping, the individual focuses on handling emotions, whereas in problem-focused coping the stressor is challenged. Dirkzwager (2003) report that more stress symptoms are observed if an emotion-focused style is mobilized instead of a problem-focused coping style. In longitudinal research, Benotch et al. (2000) found that an avoidant coping, which is an emotion-focused coping style, increases the risk of developing PTSD. Accordingly, Reich et al. (2015) report that an avoidant problem-solving

strategy increases the likelihood of being harassed and developing PTSD in women. Liverant et al. (2004) investigate the relationship between anxiety and coping styles in university students after 9/11 and found that denial, behavioral disengagement, and mental disengagement predicted initial anxiety, whereas focusing on and venting emotions predicted both initial and long-term anxiety. However, Maguen et al. (2008) conclude that each incident might need different coping methods. They argue that it may be artificial to categorize coping styles and add that emotion-focused coping might help as well, especially in situations where there is a continuous risk of a threat such as a terrorist attack.

In understanding the reactions to terrorism, focusing only on post-traumatic symptomology or having a “medical” or “diagnostic” stance may be misleading. As Maguen et al. (2008) articulate, “functional impact” is also very important. When a terrorist attack hits a city or a nation, people will inevitably change their daily routines to feel safe even though they may not develop enough psychological symptoms to have a diagnosis. To understand the entire picture after a terrorist attack, it is therefore important to assess the change in survivors’ daily routines. In a continuously traumatic environment, survivors focus more on oncoming threats and trying to avoid these threats by manipulating their daily routines, than they do focusing on the past event (Eagle & Kammer, 2013).

In this research, we examine the reactions (post-traumatic stress reactions and change in daily routines) of university students in Ankara to terrorist attacks and some risk factors (including gender, proximity, peritraumatic dissociation, psychological disturbance before the incident, prior trauma, feeling of safety, social support and coping styles) which are known to be related to these reactions. We conceptualized changes in the daily routines as problematic as it was not voluntary but instead dictated by the explosions. We chose our sample from university students since we had observed in our classes that our students had been affected by the explosions. The third explosion in Kızılay in particular seemed to increase the anxiety level of many university students, as Kızılay was an area where they often met and socialized. Moreover, eight university students were killed in the explosion, and this was frequently highlighted by the media. To make things more complicated, the suicide bomber at Kızılay was herself a female university student. Briefly, we hypothesize that gender (being a woman), proximity, peritraumatic dissociation, psychological disturbance before the incident, prior trauma, feeling of safety, and lack of social support would increase post-traumatic stress reactions and interfere with university students’ daily life. We look at the impact of different coping styles in an exploratory manner. We also hypothesize that arousal

and avoidance symptoms would be more evident than intrusive symptoms, as the explosions in Ankara were not only single events temporally related to the past, but may be perceived as signs of new forthcoming threats. We decided to gather data in two waves to analyze the effect of passing time. We gathered our first data in May 2016 (Group-I) and our second data in November 2016 (Group-II). Unfortunately, it couldn't be possible for us to reach out the same participants twice to make longitudinal research because of the turmoil among students. Some either left the city or seized coming to university regularly after the explosions. These two groups were investigated with respect to some demographic variables, as reported in our results section, to assess their similarities and differences. Although this research design does not make our research longitudinal, we hoped to see the effect of time on stress reactions and daily routine.

METHOD

Participants

Using a convenient sampling method, study sample consisted of 180 undergraduate students (145 female, 35 male) aged between 19 and 38 ($M = 21.54$, $SD = 2.34$). Participants were recruited from five universities located in Ankara, mostly from Ankara Yıldırım Beyazıt University (52.2%, $N = 94$) and Hacettepe University (42.2%, $N = 76$). The majority of the sample consisted of psychology students (75%, $N = 135$). Data was collected in two waves held in May 2016 (Group-I, $N = 45$, approximately 1 month after the last explosion), and November 2016 (Group-II, $N = 135$, approximately 7 months after the last explosion).

Procedure

The Social and Human Sciences Ethic Committee of the Ankara Yıldırım Beyazıt University examined and approved this research (Meeting 11/06, verdict 277, and date 05.05.2016). All participants were volunteers who were informed about the aims of the study and provided written, informed consent. A booklet including demographic questions, survey questions and psychological tests were provided which took about 20 minutes to complete in classroom setting.

Measures

Demographics and Survey Questions

The demographic data included participants' sex, age, and the university and department they were enrolled in. The question of how participants were related to the three explosions in Ankara and other explosions around Turkey was investi-

gated exclusively. For each traumatic incident, participants were asked to choose one out of the following five statements assessing their proximity for each of the three explosions: “I was at the explosion site and was wounded”, “I was at the explosion site or witnessed it from a distance, but I was not wounded”, “One of my relatives died or was wounded by the explosion”, “I missed the incident by chance” and “I learned about the incident from the media”. A paraphrased version of a 14 item subscale assessing past traumatic events faced of the Post-traumatic Diagnostic Scale (PDS; Foa et al., 1997) was utilized for screening past traumatic experiences prior to the explosions. The participants also replied a question about their psychiatric history indicating if they had any psychiatric or psychological help before or after the explosions. Sense of safety was assessed by asking the participants to choose among three sentences (one saying that they believed there will be no explosions and they feel safe for themselves or loved ones, the other one saying that though they believe there may an explosion they feel safe for themselves or loved ones and the last one indicating that they believe there will be another explosion do not feel safe for themselves or loved ones).

Post-Traumatic Stress Reactions Subscale (PTSR)

In order to assess the stress reactions of the participants, the 17-items subscale of the PDS (Foa et al., 1997) was used. Though there are new scales in the literature in line with the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; DSM-5; American Psychiatric Association, 2013), this scale was widely used in Turkish samples thus having more evidence about reliability and validity; this is why we used this scale. Moreover, there was no scale adapted to Turkish assessing CTS at the time we gathered our data in our best knowledge. This subscale we used will be referred to as PTSR. The original scale was based on the DSM-4 (APA, 1994). With its four subscales, PDS assesses the presence and severity of symptoms and aims to identify respondents who meet the criteria for a PTSD diagnosis. The PTSR subscale used in the present study covers 17 symptoms and participants are asked to rate the occurrence of the symptoms using a four-point Likert scale ranging from 0 (not at all) to 3 (almost always). By summing their ratings total symptom severity is assessed, higher scores indicate more severe stress reactions. Foa et al. (1997) report high internal consistency ($\alpha = .92$) and test-retest reliability ($r = .83$) for PTSR. The Turkish adaptation study (Işıklı, 2006) reports a high internal consistency ($\alpha = .93$) and a good construct validity. Concurrent validity for the Turkish version of PDS was established by correlation coefficients of Brief Symptom Inventory (BSI), Beck Depression Inventory (BDI), and Beck Anxiety Inventory (BAI) ($r = .70, .60, \text{ and } .63$ respectively, $p < .05$). In

the present study, more evidence for the criterion validity of PTSR were observed: $r = .45$ with Peritraumatic Dissociative Experiences Questionnaire and $r = .32$ with Dysfunctional Coping, ($p < .05$). The internal reliability of PTSR was also high ($\alpha = .94$) and the corrected item-total correlations for the scale ranged from .33 to .76. As the scale is based on DSM-IV (APA, 1994), we formed three subscales by grouping related items, namely re-experiencing, arousal, and avoidance. The subscales had sufficient internal reliability and criterion validity (See, Table 3). Cronbach's alpha was .85 for the re-experiencing subscale (items: 1, 2, 3, 4, 5) and the corrected item-total correlations for the inventory ranged from .48 to .77. Cronbach's alpha was .85 for the avoidance subscale (items: 6, 7, 8, 9, 10, 11, 12) and the corrected item-total correlations for the inventory ranged from .47 to .86. Cronbach's alpha was .88 for the arousal subscale (items: 13, 14, 15, 16, 17) and the corrected item-total correlations for the inventory ranged from .75 to .91.

Peritraumatic Dissociative Experiences Questionnaire (PDEQ)

PDEQ was initially developed by Marmar et al. (1997) as a 10-item Likert type scale to measure the degree of dissociative symptoms during a traumatic event. High scores indicate more symptoms. An eight-item revised version (Marshall et al., 2002) is reported to have a high internal consistency ($\alpha = .85$) with acceptable criterion and discriminative validity. The Turkish version of PDEQ showed a high internal consistency ($\alpha = .84$) and good criterion validity ($r = .34, .43, .50$ with BAI, BDI, and BSI respectively, $p < .05$). In our research, the internal consistency of PDEQ was high ($\alpha = .89$) and its correlations with PTSR ($r = .45$) and with Dysfunctional Coping ($r = .21$) showed evidence of criterion validity ($p < .05$).

The Coping Orientation to Problems Experienced (COPE) Inventory

COPE was developed by Carver et al. (1989) to assess different types of coping styles based on three studies, which they describe in detail, and the authors report firm evidence of reliability and validity. The COPE includes 60 items and has three subscales of coping strategies: problem-focused, emotion-focused, and dysfunctional coping. Participants are instructed to rank each statement from 1 (I have not been doing this at all) to 3 (I have been doing this a lot), higher scores show greater use of specific coping style. Ağargün et al. (2005) adapted COPE to Turkish and reported high internal consistency ($\alpha = .79$) and test-retest reliability coefficient ($r = .91, p < .05$). Although the authors reported no statistics for validity, some evidence for the concurrent validity of COPE with other scales in our study can be seen in Table 3. In this study, Cronbach's alpha of problem-focused, emotion-focused, and dysfunctional coping subscales were .82, .75, and .80, respectively.

Multidimensional Scale of Perceived Social Support (MSPSS)

MSPSS is a 7-point Likert type scale that consists of twelve-items which measures perceived social support from family, friends and significant others (Zimet et al., 1988). Total score is derived by summing scores given for each statement, higher scores indicate greater perceived social support. The original scale has a good construct validity, high internal consistency ($\alpha = .88$), test-retest reliability ($r = .85$) and a negative correlation with depression assessed by Hopkins Symptom Checklist ($r = -.25, p < .01$). Favorable Cronbach's alphas were reported (ranging between .77 and .88) for the Turkish version of MSPSS in different samples (Eker & Arkar, 1995). In the present study, the internal reliability was high ($\alpha = .91$), and MSPSS had a positive correlation with emotion-focused coping ($r = .17, p < .05$).

Life Changes Inventory (LCI)

The first author developed 11-items on the Life Changes Inventory (LCI) for this research. The introductory phrase of the scale goes as: "Please indicate on the scale below how much the explosions investigated in this research affected your daily life". There were statements such as "Work or school life" and "Routine works of the house". So, the participants were asked to rate the effect of the explosions in Ankara using a 5-point Likert scale (0= not affected, to 4=hugely affected). In Table 4, we report the mean scores and standard deviations of each item. In order to obtain information about the reliability of the LCI, the internal consistency, split-half reliability, and test-retest reliability coefficients were examined. The internal consistency of the LCI was high ($\alpha = .90$). The corrected item-total correlations for LCI ranged from .43 to .77. Guttman split-half reliability was .86, with a Cronbach's alpha of .88 for the first and .73 for the second part. Correlation coefficients of LCI with other scales used in this study can be seen in Table 3. These results indicate sufficient reliability and validity for LCI, at least for the present research.

Data Analysis

The data was entered and analyzed using SPSS 20. Prior to hypothesis testing, the data was screened for incomplete surveys and outliers. Upon controlling the z-scores of each variable for univariate outliers and calculating Mahalanobis distance to identify multivariate outliers, no outliers were detected, and no participant was excluded. Assumptions of normality, linearity, and homoscedasticity were examined, and no violations were observed. To see whether there are any differences between Group-I and Group-II in terms of age, prior trauma, and proximity to explosions, independent sample t-tests were conducted. We conducted

these analyses to use these two groups to better analyze the effect of time. To identify whether gender, psychological disturbance prior to the explosions, and feeling of safety were associated with a participation group, chi-square tests of independence were run. A paired sample t-test was conducted to compare the mean scores of PTSD subtypes (i.e. avoidance, arousal, re-experiencing) in all participants. Two separate paired sample t-tests were conducted to compare the mean scores of PTSD subtypes (i.e. avoidance, arousal, re-experiencing) in Group-I and Group-II. To examine the predictors of post-traumatic stress reactions and life changes after the explosions, we carried out two hierarchical regression analyses. The predicted variable was PTSD in the first regression and LCI in the second regression. Owing to the exploratory purpose of this study we entered all blocks of independent variables using the stepwise method. For both analyses, variables related to “pre-trauma” (i.e. gender, psychological disturbance prior to the explosions, and (the number of) prior traumatic experiences) were hierarchically entered into the regression equation on the first step using the stepwise method. After controlling for significant pre-trauma variables, on the second step two variables related to “peri-trauma” (i.e., proximity and dissociation) were hierarchically entered into the regression equation using the stepwise method. Finally, on the third step, variables related to “post-trauma” such as social support, and coping styles (i.e., problem-focused, emotion-focused, and dysfunctional coping) were hierarchically entered into the regression equation using the stepwise method along with the data collection group (i.e. Group-I, Group-II).

RESULTS

Descriptive Statistics, Differences Between Groups, and Correlations Between Variables

The previous traumatic experiences and psychological disturbance of participants prior to the explosions were obtained. 71.1% ($N = 128$) of our sample reported no psychological disturbance, and 26.7% ($N = 48$) reported no prior traumatic experiences while 28.9% ($N = 52$) of the population reported receiving psychiatric or psychological treatment. 73.3% ($N = 132$) of the participants reported experiencing at least one traumatic event prior to the explosions, the most common traumatic event was death of a close person (38.3%, $N = 69$), which was followed by experiences of accident, fire, explosion (23.3%, $N = 42$) and natural disasters (22.2%, $N = 40$). Participants were also asked to rate their closeness to the explosion sites (see Table 1). The current feeling of safety of participants was also assessed and almost all participants (92%, $N = 165$) reported that, “They think

that there will be other explosions; and that they feel themselves and their beloved ones under threat”. Only two participants reported feeling safe. We therefore decided not to use this variable as a predictor because of its very low variance.

Table 1: Participants’ Proximity to the Explosions

Event	1. At the explosion site, injured	2. Eye-witnesses	3. Death or injury of a close one	4. Near-miss	5. Heard from the media
October 10, 2015 (Ankara Main Train Station)	1	6	6	31	143
February 17, 2016 (Merasim Street)	0	12	3	11	153
March 13, 2016 (Kızılay Square)	0	15	6	55	120
Explosions in other cities	0	1	3	2	171

Note. Each column represents the number of the participants.

Groups did not differ from each other regarding the number of prior traumatic experiences and proximity to the explosions. However, the mean age of Group-I ($M = 23.33, SD = 2.8$) was significantly higher than Group-II ($M = 20.94, SD = 1.8$), $t(56.74) = 5.36, p < .001$. Although the mean ages turned out to be different, a three-year difference did not indicate a different age range developmentally. The results of the chi-square tests of independence show that there was no difference in gender ratio and feeling of safety between groups. The ratio of the presence and absence (i.e. P/A) of psychological disturbance prior to explosions were significantly different for Group-I (20/25) and Group-II (32/103), $\chi^2(1, N = 180) = 7.07, p < .05$. This result indicated that we needed to control for the effect of psychological disturbance between groups before concluding anything about the effect of time. Considering these findings, after controlling for the effect of prior psychological disturbance, we decided to use group membership, i.e. effect of time, as a predictor variable.

We assessed the changes in daily routines by LCI (See Table 2). The means, standard deviations, and correlations for peritraumatic dissociation, social support, coping strategies, changes in life, and post-traumatic stress reactions are presented in Table 3.

Table 2: Means and Standard Deviations for Changes in Daily Life		
Life events	<i>M</i>	<i>SD</i>
Work or school	1.93	1.1
Daily house works	0.89	.97
Friendly relations	1.33	1.13
Leisure time activities	2.50	1.11
Time spent outside	2.60	1.17
Family relations	0.78	1
Romantic relations	0.56	.95
Sexual life	0.26	.66
Life satisfaction	2.46	1.17
Places visited in city	2.96	1.23
Holiday plans	1.80	1.35

Note. Life changes were rated between 0 to 4 (0= not affected, 4=hugely affected).

Symptom Clusters of PTSR

Results indicate that avoidance scores ($M = 3.42, SD = 4.04$) were significantly higher than arousal scores ($M = 2.54, SD = 3.33$), $t(158) = 4.77, p < .001$, and re-experiencing scores ($M = 2.31, SD = 2.77$), $t(158) = -4.92, p < .001$. However, there were no significant differences between arousal and re-experiencing scores, $t(158) = -1.17, p > .05$.

For Group I, avoidance scores ($M = 8.18, SD = 4.80$) were significantly higher than arousal scores ($M = 5.91, SD = 4.12$), $t(33) = 3.98, p < .001$, and re-experiencing scores ($M = 4.5, SD = 3.40$), $t(33) = -5.54, p < .001$.

There were also significant differences between arousal and re-experiencing scores, $t(33) = -2.49, p < .05$. For Group II, avoidance scores ($M = 2.12, SD = 2.80$) were significantly higher than arousal scores ($M = 1.62, SD = 2.38$), $t(124) = 3.10, p < .05$, and re-experiencing scores ($M = 1.71, SD = 2.25$), $t(124) = -2.29, p < .05$. There were no significant differences between arousal and re-experiencing scores, $t(124) = .46, p > .05$. These results showed that even after time had passed, avoidance scores tended to be higher.

Table 3: Scale Ranges, Minimum and Maximum Scores, Means, Standard Deviations, and Bivariate Correlations among Study Variables

Variables	Scale Range	Min-Max	M	SD	1	2	3	4	5	6	7	8	9
1.PDEQ	0-32	0-28	7.41	6.76	-								
2.MSPSS	0-72	16-72	51.79	13.25	-.06	-							
3.COPE-PF	0-60	17-52	33.93	7.71	.09	.11	-						
4.COPE-EF	0-60	17-52	33.36	7.66	-.04	.17*	.50**	-					
5.COPE-D	0-60	5-46	20.06	7.40	.21*	-.10	-.02	.10	-				
6.PTSR	0-51	0-41	8.26	9.26	.45**	-.13	.06	.01	.32**	-			
7.PTSR-RE	0-15	0-14	2.34	2.81	.43**	-.08	.09	.04	.21*	.85**	-		
8.PTSR-AV	0-21	0-18	3.39	4.01	.40**	-.11	.05	-.03	.30**	.95**	.71**	-	
9.PTSR-AR	0-15	0-15	2.54	3.34	.43**	-.14	.04	.06	.34**	.92**	.68**	.82**	-
10.LCI	0-44	0-39	18.98	8.58	.44**	-.04	.12	-.10	.21*	.61**	.55**	.59**	.55**

PDEQ: Peritraumatic Dissociative Experiences Questionnaire, MSPSS: Multidimensional Scale of Perceived Social Support, COPE-PF: Problem-focused subscale, COPE-EF: Emotion-focused subscale, COPE-D: Dysfunctional subscale, PTSR: Post-traumatic stress reactions, PTSR-RE: Re-experiencing subscale, PTSR-AV: Avoidance subscale, PTSR-AR: Arousal subscale, LCI: Life Changes Inventory; * $p < .05$ ** $p < .001$.

Regression Analyses

Associated Factors of Post-Traumatic Stress Reactions

In the first regression analysis, PTSR served as the dependent variable. The results revealed that (See Table 4), in the first block of variables, prior trauma entered into the equation [$\beta = .27, t(125) = 3.19., p < .05$], and explained 8% of variance ($F(1, 125) = 10.19, p < .05$). For the second block of variables, dissociation entered into the equation [$\beta = .42, t(125) = 5.16., p < .001$], and increased the explained variance to 24% ($F_{\text{change}}(2, 124) = 19.43, p < .001$). For the third block, the data collection group had a significant effect [$\beta = -.58, t(125) = -9.45., p < .05$], and increased the explained variance by 56% ($F_{\text{change}}(3, 123) = 51.97, p < .001$). Accordingly, those who had experienced a traumatic event prior to the explosions, who had strong dissociation during the explosion, and who were in Group-I tended to develop more severe post-traumatic stress reactions.

Associated Factors of Life Changes

In the second regression analysis, LCI served as the dependent variable. The results revealed that (See Table 4), in the first block of variables, prior trauma entered into the equation [$\beta = .28, t(77) = 2.54., p < .05$], and explained 8% of the variance ($F(1, 77) = 6.45, p < .05$). For the second block of variables, dissociation entered into the equation [$\beta = .37, t(77) = 3.56., p < .05$], and increased the explained variance to 21% ($F_{\text{change}}(2, 76) = 10.04, p < .001$). For the third block, the

data collection group [$\beta = -.30, t(77) = -2.86., p < .05$] increased the explained variance to 29% ($F_{\text{change}}(3, 75) = 10.06, p < .001$). Accordingly, those who had experienced a greater number of traumatic events prior the explosions and had a stronger dissociation during the explosions, and who were in Group-I tended to report a greater amount of change in their lives.

DISCUSSION

The first finding we want to discuss is the percentage of those who had encountered a traumatic event in their lifetime (73.3%) before the explosions. This finding seems to be in line with previous epidemiological research, which put the figure at 85% (Karancı et al., 2008). Our percentage may be lower due to our younger sample, as the mean age was 40.86 in Karancı et al.'s (2008) study, and 21.54 in our research.

Table 4: Associated Factors of Post-Traumatic Stress Reactions and Life Changes

DV	IV	Df	F _{change}	β	T	R ²
PTSR						
	I. Pre-trauma Variables					
	1. Prior trauma	1,125	10.19*	.27	3.19*	.08
	II. Peri-trauma Variables					
	1. Dissociation	2,124	19.43**	.42	5.16**	.24
	III. Post-trauma Variables					
	1. Data collection time	3,123	51.97**	-.58	-9.45*	.56
LCI						
	I. Pre-trauma Variables					
	1. Prior trauma	1,77	6.45*	.28	2.54*	.08
	II. Peri-trauma Variables					
	1. Dissociation	2,76	10.04**	.37	3.56*	.21
	III. Post-trauma Variables					
	1. Data collection time	3,75	10.06**	-.30	-2.86*	.29

DV: Dependent variable, IV: Independent variable, PTSD: Post-traumatic Stress Reactions, LCI: Life Changes Inventory *p < .05 **p < .001

Gender, being a woman or man, did not predict PTSR or LCI. This finding seems to be in contradiction with the PTSD literature (see Brewin et al., 2000). However, as Cortina and Kubiak (2006) point out, there are some methodological issues with those studies which ascribe vulnerability to gender. The authors argue that women may seem vulnerable because they are already traumatized sexually before the traumatic event under investigation. In our sample, the women outnumbered men, making this finding questionable (145 women, 35 men). Moreover, gender seems to only minimally, although significantly, predict PTSD (Brewin et al., 2000). We believe that the gender issue must be investigated further.

Another interesting result reveals that the proximity to the explosions does not predict PTSR or LCI. In our sample, those who learned the explosions from the media outnumbered those who were somehow experienced the explosions “closer” (152 versus 587; note that the numbers are additive). So, this finding must be approached cautiously. Still, this result may also show that terrorist attacks have the potential to affect not only those who personally experience them but all fellow citizens. One explanation for this finding might be that the explosion in Kızılay, the city center, which killed 8 university students, allowed the participants in our sample to easily identify with the victims. When identification comes into effect, physical proximity may become less important as participants feel psychologically close to the experience of the victims. In line with our argument, Pfefferbaum et al (2000) state that media exposure contributes to PTSD symptoms for those who are not directly exposed to the traumatic event. Similarly, Aber et al. (2004) find that media exposure, rather than physical or family exposure, predicted PTSD symptoms. We believe that exposure to the media was almost inevitable during that time period in Ankara. Almost every participant felt insecure after the terrorist attacks (only 2 out of the whole sample felt safe). This finding once again shows the devastating effect of terrorist attacks, independent of proximity.

In line with the above finding of proximity, avoidance symptoms were higher than arousal and re-experiencing symptoms. In both groups even if the intensity of the symptoms diminished over time, avoidance symptoms seem to be the main manifestation of stress reactions. This finding is in line with Diamond et al. (2010). The authors found that their participants are more likely to experience hyperarousal, distress and loss of control instead of re-experiencing symptoms. They argue that avoidance symptoms are (sometimes) reality-based in, what they call, ongoing traumatic stress response which is a similar concept for CTS. We believe that our finding is important for two reasons. First, this result shows that though repetitive terrorist attacks can also be conceptualized as single traumatic

events, they are not only incidents happened in the past and which now poses no real danger, but, also indicators of a coming explosion or turmoil. So, CTS construct may help us understand reactions better. Ongoing terrorist attacks impact the fundamental feeling of security and thus their psychological results must also be conceptualized according to the CTS concept. It might even be debatable whether avoiding specific places in town or staying at home are really “symptoms”. In Ankara, at least at the time we were gathering our data, it had become part of the daily routine to check social media to find “dependable information” about the next target of a terrorist attack. This leads to us to our second conclusion: the conventional way of handling those affected by ongoing terrorist attacks with only behavioral techniques such as exposure (especially in vivo) may be difficult.

One of our main interests was to understand if time significantly reduces symptoms. The first regression analysis reveals that Group-I had more stress reactions than Group-II. We must underline that this result emerged after we controlled for the psychiatric disturbance, which was different for the groups. One confounding variable was the age which was also different between groups. However, the difference was only approximately 3 years. In this sample, this difference does not point to a significant change in the developmental level. So, we may conclude that the stress reactions diminish over time (keeping in mind that this study was not longitudinal). This finding is in line with the related literature. The second regression analysis shows that the first group was more affected by the explosions than the second. Participants in the second group seemed to continue with their usual daily activities. Although our method is not a longitudinal one, we can conclude that people returned to their usual way of living as time passes.

Peritraumatic dissociation was positively related to PTSR and interfered with the daily lives of the participants. This finding is in line with other research (McCanlies et al., 2017; Thompson-Hollands et al., 2017). Although it may be understandable for everyone to “dissociate” in order to flee from the annoying emotional consequences of a traumatic experience, it seems that dissociation during or after traumatic events hamper the process of recovery. We believe that dissociation blocks the individual’s search for meaning by deteriorating some verbal and memory functions, as well as attention. It is actually well documented that PTSD is related to these variables (Scott et al., 2015) and dissociation plays a role (Swick et al., 2017). A dissociative state during the traumatic event may negatively influence the memory system and the registration of the event. A badly registered event cannot be verbalized and thus mentalized and it therefore remains in the mind as traces of sensations. We believe this may be why intrusive symptoms persist.

Psychological problems before the explosions were not related to the symptoms or the participant's daily life. This finding is interesting since psychological disturbance is generally reported to be a risk factor (Breslau, 2002; Brewin, Andrews, and Valentine, 2000; Hapke et al., 2006). However, these findings used PTSD as a dependent variable. Our participants showed only mild stress symptoms. Perhaps prior psychological problems *are* predictors for PTSD but *not* for general stress symptoms. Moreover, we entered prior psychological trauma into the regression analyses at the same step which was found related to PTSR and LCI. These two variables (prior trauma and prior psychological disturbance) could be highly related, and the effect of prior psychological disturbance could be suppressed by prior trauma. Prior traumas seem to act as a vulnerability factor. The stress levels of these participants were probably higher than the others and the terrible traumatic events aggravated their difficulties. Breslau et al. (2008) argues that "the preexisting susceptibility to a pathological response to stressors may account for the PTSD response to the prior trauma and the subsequent trauma."

Another intriguing finding was the fact that coping did not predict PTSR or LCI. The relationship between coping and distress reactions are suggested to be more complex – Pat-Horenczyk et al. (2009) for example report a positive correlation between two. Baschnagel et al. (2009) argue that things may become more complex with CTS. We may add that the behavioral avoidance symptoms are sometimes reality-based, so they are not always related to PTSR symptomatology. The authors also argue that problem-focused coping may simply be irrelevant to handling CTS situations. Another reason for coping not being observed as a predictive variable may be due to our design. As will be remembered, we used hierarchical regression with three steps (pre-traumatic variables, peritraumatic variables and post-traumatic variables). COPE's three subscales were in the last step, thus the shared variance with those pre and peritraumatic variables were already in the regression equation. Finally, it seems that some cultural factors may also be available when coping mechanisms are in use (Bardi & Guerra, 2010). Turkey is a country with a lot of cultural diversity. Perhaps this issue, taking culture into account, should be investigated further in future research.

Social support was another variable for which we could not find any significant relationship with PTSR and LCI. Although this finding may seem surprising, the relationship between social support and distress is difficult to explain, particularly in ongoing distressful situations where surrounding people are also involved. Robinaugh et al. (2011) argue that the relationship varies with time and intensity of the reactions. Cook and Bickman (1990) argue that social support may be

related to the maintenance of PTSD, but not with its development. There may therefore be various factors shaping the association between social support and PTS. University students, who constituted our sample, socialize mostly with their friends who were also experiencing the terrible terrorist attacks. It is plausible to think that the distress level of everyone was high, which may have resulted in interpersonal friction alleviating PTSR (Zoellner et al., 1999). Hobfoll and London (1986) talk about a “pressure cooker” effect if the entire population is affected by the same event where intimate ties may intensify and spread concerns. Borja et al. (2006) report that positive social support is related to post-traumatic growth but not with PTSD. Post-traumatic growth was not assessed in our research, and its inclusion might help give a better picture of the issue. Recent research indicates that the relationship of social support with PTSR is complex, and the relationship can better be understood by using symptom clusters (e.g., disturbance in relationships) and different levels of social support (low versus high). Bayer-Topilsky (2012) argues that ongoing terrorist attacks create an uncertain environment where individuals focus on general feelings of anxiety and depression instead of PTSR. We may add that, as discussed above, some trauma-related reactions (e.g., being alert, safety behaviors) are not -and should not be- perceived as symptoms. Those giving social support to the victims may also focus on other issues, making the relation between social support and PTSR invisible.

To conclude, we must state some limitations to our research. Although we conceptualized the explosions as CTS, we used a cross-sectional design which is more appropriate for PTSD. Using a longitudinal design and perhaps using qualitative methods such as interviews would help us better understand the effect of CTS on people. The fact that social support and coping were not associated with traumatic stress reactions in our research calls for a better understanding of the relationship of these variables with ongoing traumatic situations, which we believe have differences from single traumatic incidents.

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